

Final Technical Report, AFOSR-F49620-94-1-0164

Equipment for In-Situ Studies of Metal on III-IV Semiconductors

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This supplemental grant was used to purchase a badly needed workstation for modeling of quantitative electron diffraction patterns from surfaces. The equipment purchased was an Hewlett-Packard 715/75 workstation. For reasons which are not completely clear, this computer ended up costing \$58.78 less than the quote from Hewlett-Packard upon which the proposed budget was based.

In addition to providing additional computing power for calculating diffraction patterns from surfaces (see references [1-3]), it also opened up completely new areas. Perhaps the most exciting of these is computer intensive image filtering based around Wiener filters [4-5] which have allowed us to directly resolve atomic surface structures at a resolution of better than 0.25 nm [1,3,6]. We have also used these new filter methods of image restorations in a very large number of cases for work both directly supported by AFOSR and by other agencies. It is realistic to state that with these filters we have almost completely abandoned dark-room chemical printing for digital processing of images, at a substantial long-term reduction in costs.

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